REMARKS

Present Status of the Application

The Office Action rejected claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (U.S. Patent 5,734,241; hereinafter Okada). Claims 1-20 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Office Action Rejections

The Office Action rejected claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Okada. Applicants respectfully traverse the rejections for at least the reasons set forth below.

The present invention is directed to a method and device for stopping the spindle motor of an optical disc system without referring to a frequency signal under a CLV mode.

As for example shone in FIG. 2, the present invention is operated in three periods.

The reversing torque is generated in a first period (t0-t1). The reversing torque is decreased in a second period (t1-t2) and therefore the speed of the spindle motor gradually reduces in the second period. Finally, the speed of the spindle motor becomes zero in a third period (t2-t3), as a locking torque which is substantially lower than the torque required to actuate the spindle motor, is generated.

The features are recited in claims 1, 8 and 15. For example, independent claim 1 recited the features in the following:

1. A method for stopping the spindle motor of an optical disc system, comprising:
deriving a reversing torque in the spindle motor during a first period;
decreasing the reversing torque during a second period; and
deriving a locking torque in the spindle motor during a third period, wherein the locking torque is substantially at a level smaller than that for actuating the spindle motor and the spindle motor remains stationary after the third period terminates. (emphasis added).

Claims 8 and 15 also recite the similar features.

In re Okada, Okada does not teach the three-stage operation as recited in claimed invention. Okada (col. 12, liens 45-67) teaches that the reverse torque is generated by a first brake current at a first current level, to thereby perform the brake operation at a full torque.

Then, Okada teaches that when the rotating speed reaches the absolute number of revolutions, the monostable multivibrator 307 generates a low level signal. In response to the low level signal, the current control circuit 308 switches from the first brake current to the second brake current of a second current level smaller than the first current level. *As a result, the brake operation is performed by a small reverse rotation torque by using the second brake current.* The second brake current is gradually decreased, to thereby smoothly stop the rotation.

Therefore, the cited reference by Okada differs from the present invention ***as Okada does not disclose that the reverse torque decreases in the second period, and a locking torque in a third period is derived to reach the stationary state.***

In other words, Okada only discloses the two-stage operation by the first braking current level and the second braking current level until stop.

For at least the foregoing reasons, Applicant respectfully submits that independent claims 1, 8 and 15 patently define over the prior art references, and should be allowed. For at least the same reasons, dependent claims 2-7, 9-14, and 16-20 patently define over the prior art as well.

CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-20 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,
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